## REMARKS

Applicants respectfully request favorable reconsideration of this application, as amended.

Applicant notes with appreciation the indication of allowable subject matter with respect to Claims 2 and 9.

Clams 1, 3–5, 8 and 10 were rejected under 35 U.S.C. § 102(b) as being anticipated by Kay (US 5,542,107). Claims 6, 7 and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kay in view of Solondz (US 6,259,730). Without acceding to the rejection under § 103, Claim 11 has been canceled without prejudice and Claim 6 has been amended to more clearly recite that the radio communications system includes a plurality of transmitters. Additionally, Claim 1 has been amended for grammatical reasons not related to patentability. No new matter has been added. Thus, Claims 1–10 are pending.

The present invention is directed to a radio communications system including at least two transmitters (e.g., transmitters 2A and 2B) and at least one receiver (e.g., receiver 3). Transmitter 2A receives transmission information from input terminal 1, and includes modulator 4A and first gain adjuster 5A coupled to antenna 8A, and delay unit 6A and second gain adjuster 7A coupled to antenna 9A. Transmitter 2B is similarly configured. Antennas 8A, 8B transmit signals without delay, while antennas 9A, 9B transmit signals that are delayed arbitrarily by respective delay units 6A, 6B and amplified by respective second gain adjusters 7A, 7B. *See*, e.g., FIG. 1; Pages 13–16. Prior to transmission, the delay outputs from the transmitters, i.e., the delayed signals transmitted by antennas 9A, 9B, are set so that their output powers, regulated by second gain adjusters 7A, 7B, are different from each other. *See*, e.g., Page 14 ("At this time, the delay outputs from the transmitters are set so that their output powers are different from each other"), Page 15 ("In the present embodiment, arbitrary delay is given to the respective antennas, and at least one delay output between the transmitters is set so as to have a different output power").

Claim 8 is directed to a transmitter characterized in that in the case where a plurality of transmitters transmit same signals with same frequency band, at least one antenna is provided, and an arbitrary delay is given to said antenna so that an output power which is different from

at least one delay output in the other transmitters is set. Claim 1 is directed to a radio communications system and recites similar subject matter.

Claim 10 is directed to a transmitter characterized in that in the case where a plurality of transmitters transmit same signals with same frequency band, at least one antenna is provided, and signals which are supplied to respective antennas are signals which are obtained by differently delaying modulated signals and carrying out weighting synthesization on the signals, and at least one of the delay amount and the weighting factor is set to a value different from the other transmitters. Claim 4 is directed to a radio communications system and recites similar subject matter.

Claim 6 is directed to a radio communications system that includes a plurality of transmitters each having a plurality of antennas for transmitting identical signals with the same frequency band, wherein said signals being supplied to said plurality of antennas are obtained by differently delaying modulated signals and carrying out amplitude regulation on the signals, and at least one of the delay amount and the value of amplitude regulation is set to different values in each of said transmitters.

Applicant respectfully submits that none of the cited references, taken either singly or in combination, teaches or suggests all of the features recited by Claims 1, 4, 6, 8 and 10.

Kay discloses a mobile radio communications system that uses forward channel transmission diversity to enhance the quality of the base station to mobile station link. *See*, e.g., Col. 3:16–25. While Kay's base station 100 includes nineteen baseband transmitters (R1 to R19) that transmit voice signals in their respective channels, base station 100 includes a single baseband transmitter (R20) that transmits a delayed voice signal for any voice channel determined to have adverse signal conditions that creates a need for diversity transmission. *See*, e.g., Col. 5:15–25; FIG. 6. Furthermore, Kay teaches that his invention is an improvement over prior art systems that provide an additional diversity transmitter for each voice channel because his invention applies diversity transmission to a channel only "when a channel need arises for quality improvement as opposed to applying diversity transmission to all channels at all times" (Col. 5:23–25). *See*, e.g., FIG. 5 (prior art); Col. 4:59 to Col. 5:4.

Kay fails to teach or suggest that signals transmitted from an antenna of one transmitter are delayed an arbitrary delay time so that output power, which is different from at least one delay output in the other transmitters, is set in each of the plurality of transmitters, as recited

by Claims 1 and 8. Instead, as discussed above, Kay teaches that his base station 100 transmits nineteen non-delayed signals, i.e., the signals transmitted from baseband transmitters R1 to R19, but only one delayed signal, i.e., the signal transmitted from baseband transmitter R20. And, while Kay teaches that his concept may be extended to allow the baseband transmitter R20 to handle up to three mobile units using the same frequency, Kay admits that intracell hand-off may be required prior to using transmit diversity. *See*, e.g., Col. 6:41–46. Thus, Kay not only fails to teach or suggest that each transmitter transmits a signal that is delayed an arbitrary delay time, but Kay also fails to teach or suggest that at least one of the delayed signals is transmitted at an output power that is different from the output power of the other transmitters' delayed signals. Consequently, Kay fails to teach or suggest all of the features recited by Claims 1 and 8.

Similarly, Kay fails to teach or suggest that signals supplied to respective antennas are obtained by differently delaying modulated signals and carrying out weighting synthesization on the signals, where at least one of the delay amount and the weighting factor is set to a value different from the other transmitters, as recited by Claims 4 and 10. As discussed above, Kay fails to disclose that more than one voice channel signal may be delayed differently and, further, that weighting synthesization may be performed. Moreover, because Kay fails to disclose weighting synthesization, Kay also fails to teach or suggest that a weighting factor may be set to a value different from the other transmitters. Consequently, Kay fails to teach or suggest all of the features recited by Claims 4 and 10.

Likewise, Kay fails to teach or suggest that signals supplied to the plurality of antennas are obtained by differently delaying modulated signals and carrying out amplitude regulation on the signals, where at least one of the delay amount and the value of amplitude regulation is set to different values in each of said transmitters, as recited by Claim 6. As noted above, Kay fails to disclose that more than one voice channel signal may be delayed differently and, further, that amplitude regulation may be performed. Moreover, because Kay fails to disclose amplitude regulation, Kay also fails to teach or suggest that the amplitude regulation may be set to a value different from the other transmitters. The Office Action apparently agrees.[1]

Solondz discloses a base station 30 that has a transmitter with a non-delayed signal path and "N" delayed signal paths, where each of the delayed signal paths includes a delay

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[1] *See*, Office Action at Page 4.

element 32N and an amplifier 33N. Solondz teaches that each delay element delays the modulated signal by a predetermined delay time NΔ. *See*, e.g., Col. 4:8–57; FIG. 6. Assuming, *arguendo*, that Solondz's base station 30 includes more than one transmitter, Solondz simply fails to teach or suggest that at least one of the delay amount and the value of amplitude regulation is set to different values in each of his base station transmitters. Consequently, both Kay and Solondz fail to teach or suggest all of the features recited by Claim 6.

Accordingly, Claims 1, 4, 6, 8 and 10 are allowable over the cited references. Claim 3, depending from Claim 1, and Claims 5 and 7, depending from Claim 4, are also allowable, at least for the reasons discussed above.

In view of the remarks presented herein, Applicants respectfully submit that this application is in condition for allowance and should now be passed to issue.

A Notice of Allowance is respectfully solicited.

If any extension of time is required in connection with the filing of this paper and has not been requested separately, such extension is hereby requested.

The Commissioner is hereby authorized to charge any fees and to credit any overpayments that may be required by this paper under 37 C.F.R. §§ 1.16 and 1.17 to Deposit Account No. 02-2135.

Respectfully submitted,

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By: _____

Adam M. Treiber
Reg. No. 48,000

1425 K Street, N.W., Suite 800
Washington, D.C. 20005
(202) 783-6040 (voice)
(202) 783-6031 (fax)

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